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Data Sheet

August 15, 2026

DIAMOND SYSTEMS

Diamond Systems Emerald-MM-DIO 4-Port RS-232 and 48 Digital I/O PC/104 Module

The Emerald-MM-DIO is a PC/104 module that combines four RS-232 serial ports with 48 digital I/O lines on a single board for embedded systems. It delivers serial communication via 16C554 UARTs supporting up to 115.2 Kbps (460.8 Kbps with optional crystal), plus individually programmable digital I/O with edge detection on 24 lines. The module fits the tight footprint constraints of PC/104 applications while providing industrial-temperature operation and full interrupt sharing across multiple ports. Inverting logic: logic 0 tri-states and pulls high via 10 kΩ resistor (input mode); logic 1 drives low Edge detection on 24 lines with selectable high/low edge triggering and interrupt generation Aumictech offers NIST-traceable calibration and repair for the Diamond Systems Emerald-MM-DIO. Calibration covers per-channel threshold accuracy, input leakage current, logic level high/low margins,



MODEL

**Diamond Systems
Emerald-MM-DIO**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

Emerald-MM-DIO

LISTING

<https://aumictechlabs.com/products/emerald-mm-dio-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 • 811210 • 541380

This unit

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programmable digital I/O with edge detection on 24 lines. The module fits the tight footprint constraints of PC/104 applications while providing industrial-temperature operation and full interrupt sharing across multiple ports. Technical Specifications Serial Ports 4× RS-232 interfaces with 16C554 UARTs (16-byte FIFOs) Data rates to 115.2 Kbps standard; 460.8 Kbps available with optional crystal Full 8-signal set plus ground per port Dual 20-pin (2×10) I/O headers at 0.1" centers Jumper-selectable from 8 I/O address combinations and 11 interrupt levels Interrupt sharing fully supported with dedicated status register Digital I/O 48 lines organized into six 8-bit ports Individual bit-level programmability for input or output Inverting logic: logic 0 tri-states and pulls high via 10 kΩ resistor (input mode); logic 1 drives low Output current: 0.3 mA (high state), 8 mA (low state) Edge detection on 24 lines with selectable high/low edge triggering and interrupt generation Two 2×25-pin I/O headers Physical & Electrical Dimensions: 3.55" × 3.775" Power: +5 VDC ±10%, 5V-only operation Typical current draw: 80 mA (all outputs unloaded) Operating temperature: -40°C to +85°C (extended versions available) Humidity: 5% to 95% non-condensing Key Features PC/104 form factor with 8-bit and 16-bit ISA bus headers Bit-level input/output control eliminates need for external logic Edge-triggered interrupts support event-driven application designs Full interrupt sharing allows stacking multiple modules on single IRQ Industrial temperature range for harsh environments Typical Applications Embedded data logging, industrial control interfaces, sensor array multiplexing, legacy serial device bridging, distributed I/O expansion in confined spaces. Compatibility & Integration Supports virtually all embedded operating systems via industry-standard PC/104 ISA interface. Universal Driver software provided for edge detection configuration and interrupt management.

EMERALDMMDIO Characteristics / Specifications

PARAMETER	VALUE
Model	Emerald-MM-DIO
Instrument Type	PC/104 serial and digital I/O module
Family	Diamond Systems Emerald-MM
Serial Ports	4 RS-232 with full 8-signal set
Uart	16C554 / ST16C554 with 16-byte FIFOs
Maximum Baud	115.2 kbps (115 kbps class listings)
Address Combinations	eight jumper-selected address maps
Interrupt Levels	eleven interrupt levels; interrupt sharing supported
Dio Lines	48 digital I/O in six 8-bit ports
Dio Direction	programmable bit by bit
Pull Up	10 kohm pull-up resistors on DIO
Output Current High	0.3 mA high state
Output Current Low	8 mA low state
Logic	inverting DIO; write 0 tri-states and pulls high (logic 1 input); write 1 drives low
Edge Detection	24 lines with programmable high/low edge and interrupt
Serial Headers	dual 20-pin I/O headers, two ports per header
Power	plus 5 V
Operating Temperature	minus 40 C to plus 85 C extended temperature
Form Factor	PC/104
Software	Diamond Universal Driver edge-detect support
Manufacturer	Diamond Systems Corporation
Literature	Diamond Systems Emerald-MM-DIO datasheet / manual v3.12
System Role	combined serial plus DIO PC/104 module
Related Eight Port	Emerald-MM-8PL 8-port sibling
Related Opto	Emerald-MM-Opto isolated sibling

PARAMETER	VALUE
Host Os	industry-standard UART compatible with popular embedded OS

EMERALDMMDIO Specifications

PARAMETER	VALUE
Applications	PC/104 stacks needing four COM ports plus 48 DIO and change-of-state interrupts in one module height.
Key Features	Four RS-232 ports with 16C554 16-byte FIFOs
Edge detect interrupt on 24 lines	Extended temperature minus 40 to plus 85 C

General Specifications & Supplementary Characteristics

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Related Eight Port	Emerald-MM-8PL 8-port sibling
Related Opto	Emerald-MM-Opto isolated sibling
Host Os	industry-standard UART compatible with popular embedded OS Notes From Diamond Systems Emerald-MM-DIO datasheet/manual (4x RS- 232 16C554 115.2 kbps, 48 DIO, 0.3/8 mA, minus 40 to plus 85 C). Confirm XT versus commercial temperature marking on the installed board.

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Specifications	
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Notes

From Diamond Systems Emerald-MM-DIO datasheet/manual (4x RS-232 16C554 115.2 kbps, 48 DIO, 0.3/8 mA, minus 40 to plus 85 C). Confirm XT versus commercial temperature marking on the installed board.

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.